

9/09/13

Goals: Find products and quotients of real numbers.

Agenda:

- Review Homework p. 34-36 (14-40 evens, 70-74 evens)
 - check in all past HW
- Section 1.6 - Multiplying and Dividing Real Numbers
- Begin Homework

QUIZ TOMORROW! Sections 1.4-1.6

Section 1.6 Multiplying & Dividing Real Numbers

Review of Properties:

Commutative Property of Multiplication: ^{ORDER} $a \cdot b = b \cdot a$
Associative Property of Multiplication: ^{GROUPING} $(a \cdot b) \cdot c = a \cdot (b \cdot c)$
Multiplicative Identity: $a \cdot 1 = a$
Zero Multiplication Property: $a \cdot 0 = 0$

New Material:

Multiplying Real Numbers:

SAME SIGN POSITIVE
Pos x Pos = POS.
Neg x Neg = POS.

DIFFERENT SIGN NEGATIVE
Pos x Neg = NEG.
Neg x Pos = NEG.

$6(-15) = -90$
 $12(0.2) = 2.4$
 $\frac{-7}{10} \cdot \frac{3}{5} = \frac{-21}{50}$
 $(-4)^2 = -4 \cdot -4 = +16$

Even number of negatives = POS

$-x - x - x -$
+ +

Odd number of negatives = NEG

$-x - x -$
+ x -

Dividing Real Numbers:

- DIFFERENT SIGNS \rightarrow NEG
- SAME SIGNS \rightarrow POS

$\frac{0}{a} = 0$ $\frac{a}{0} \rightarrow \text{UNDEFINED}$

Section 1.6 Multiplying & Dividing Real Numbers

Simplifying Square Root Expressions:

$$-\sqrt{25} = -5 \quad \sqrt{64} = 8 \quad \sqrt{25} = 5$$
$$\pm \sqrt{\frac{4}{49}} = \pm \frac{2}{7}$$

Inverse Property of Multiplication:

$$a \cdot \left(\frac{1}{a}\right) = 1 \quad \frac{2}{1} \cdot \frac{1}{2} = 1$$

RECIPROCAL

Dividing Fractions:

K - KEEP 1ST

C - CHANGE \div TO \times

F - FLIP 2ND

$$\frac{3}{4} \div \left(\frac{-5}{2}\right)$$
$$\frac{3}{4} \cdot \frac{-2}{5} = \frac{-6}{20} = \frac{-3}{10}$$

Homework p.42-44 (8-46 evens, 54, 56, 70)

Find each product. Simplify, if necessary.

See Problem

8. $-8(12)$

9. $8(12)$

10. $7(-9)$

11. $5 \cdot 4.1$

12. $-7 \cdot 1.1$

13. $10(-2.5)$

14. $6\left(-\frac{1}{4}\right)$

15. $\frac{1}{9}\left(-\frac{3}{4}\right)$

16. $-\frac{3}{7} \cdot \frac{9}{10}$

17. $-\frac{2}{11}\left(-\frac{11}{2}\right)$

18. $\left(-\frac{2}{9}\right)^2$

19. $(-1.2)^2$

Simplify each expression.

See Problem

20. $\sqrt{400}$

21. $\sqrt{169}$

22. $-\sqrt{16}$

23. $-\sqrt{900}$

24. $\sqrt{\frac{36}{49}}$

25. $-\sqrt{\frac{25}{81}}$

26. $-\sqrt{\frac{1}{9}}$

27. $-\sqrt{\frac{121}{16}}$

28. $\pm\sqrt{1.96}$

29. $\pm\sqrt{0.25}$

Find each quotient. Simplify, if necessary.

See Problem

30. $48 \div 3$

31. $-84 \div 14$

32. $-39 \div (-13)$

33. $\frac{63}{-21}$

34. $-46 \div (-2)$

35. $-8.1 \div 9$

36. $\frac{-121}{11}$

37. $75 \div (-0.3)$

- STEM** 38. **Scuba Diving** A scuba diver's vertical position in relation to the surface of the water changes by -90 ft in 3 min. What is the average change in the diver's vertical position each minute?

39. **Part-Time Job** You earn the same amount each week at your part-time job. The total amount you earn in 4 weeks is \$460. How much do you earn per week?

Find each quotient. Simplify, if necessary.

See Problem

40. $20 \div \frac{1}{4}$

41. $-5 \div \left(-\frac{5}{3}\right)$

42. $\frac{9}{10} \div \left(-\frac{4}{5}\right)$

43. $-\frac{12}{13} \div \frac{12}{13}$

Find the value of the expression $\frac{x}{y}$ for the given values of x and y . Write your answer in the simplest form.

44. $x = \frac{2}{3}, y = -\frac{1}{4}$

45. $x = -\frac{5}{6}, y = \frac{3}{5}$

46. $x = \frac{2}{7}, y = -\frac{20}{21}$

47. $x = \frac{3}{8}, y = \frac{3}{4}$

Evaluate each expression for $m = -5$, $n = \frac{3}{2}$, and $p = -8$.

54. $-7m - 10n$

55. $-3mnp$

56. $8n \div (-6p)$

57. $2p^2(-n) \div m$

Standardized Test Prep

70. Which expression does NOT have the same value as $-11 + (-11) + (-11)$?

(A) -33

(B) $3(-11)$

(C) $(-11)^3$

(D) $33 - 66$